

An avalanche of planning for multi-national Arctic field campaigns

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A new US GEOTRACES program is moving full-steam ahead into the implementation phase for the collection of critical geochemical data from the Arctic Ocean. Icebreakers from the US, like the Healy, as well as vessels from different nations will be employed in the field. The effort, led by Dr. David Kadko from the University of Miami, will study how the carbon budget, geochemical cycles, and ecosystems in the Arctic will respond to rapidly changing climate conditions. Credit: USCG

The U.S. GEOTRACES Science Steering Committee (SSC) has established a U.S. Arctic GEOTRACES initiative to help characterize and understand regional biogeochemical changes associated with rapid climate change. The initiative will use multiple icebreakers, anticipated from the U.S. and Germany initially, and include scientists from several nations who will contribute to sampling the Arctic Ocean. Initial cruises are tentatively planned for 2015.

Chaired by University of Miami, Rosenstiel School of Marine & Atmospheric Science Professor David Kadko, the GEOTRACES effort will study how the carbon budget, geochemical cycles, and ecosystems in the [Arctic](#) will respond to rapidly changing climate conditions.

"This initiative marks the first time we will conduct a grand-scale, coordinated experiment in the Arctic Ocean that will allow us to better understand the effects of global climate change on the region," said Kadko. "We now have the tools and the required access to test the biogeochemical processes taking place right now in the Arctic, which will help us to establish a baseline against which to measure varying conditions in the future."

The GEOTRACES program has held several informational meetings around the world to update the community on the planning process and solicit input from researchers. The meetings and workshops, funded in part by the National Science Foundation (NSF), have brought together some of the world's top scientists interested in the biogeochemical cycles of trace elements and their isotopes to assist in planning the expeditions. From June 13-15 the U.S. Arctic GEOTRACES group will hold an implementation meeting in Washington D.C. at NSF headquarters to define the scientific objectives of a US-led cruise in the western [Arctic Ocean](#), planned for late summer 2015. Planning by other nations regarding their contributions are ongoing, and will be coordinated with the US effort.

"Significantly, the data we gather will help us to model feedback mechanisms and future trajectories of Arctic change we may face with ongoing shifts in climate that may impact us -- regardless of whether we live near the Arctic or as far away as Miami," added Kadko.

GEOTRACES is an international program whose mission is to identify processes and quantify fluxes that control the distributions of key trace

elements and isotopes in the ocean, and to establish the sensitivity of these distributions to changing environmental conditions.

Provided by University of Miami

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